GUIDE TO THE ISSUES

HOUSE REPUBLICAN POLICY COMMITTEE

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THE CONNECTION BETWEEN EXTREME WEATHER AND CLIMATE CHANGE

In the weeks following an extreme weather event, such as a hurricane or flood, it is easy to find a headline that blames climate change. Extreme weather events and climate change have become inextricably linked in recent years. Just look at some of the headlines. Sadly, the two are often connected in the news without any evidence to support the link. Aside from meteorologists and climate scientists, most don't understand the connection between the two and others flat out lie about the connection. In an effort to combat misinformation, we've laid out the facts about different weather events and whether climate change is actually fueling their surge.

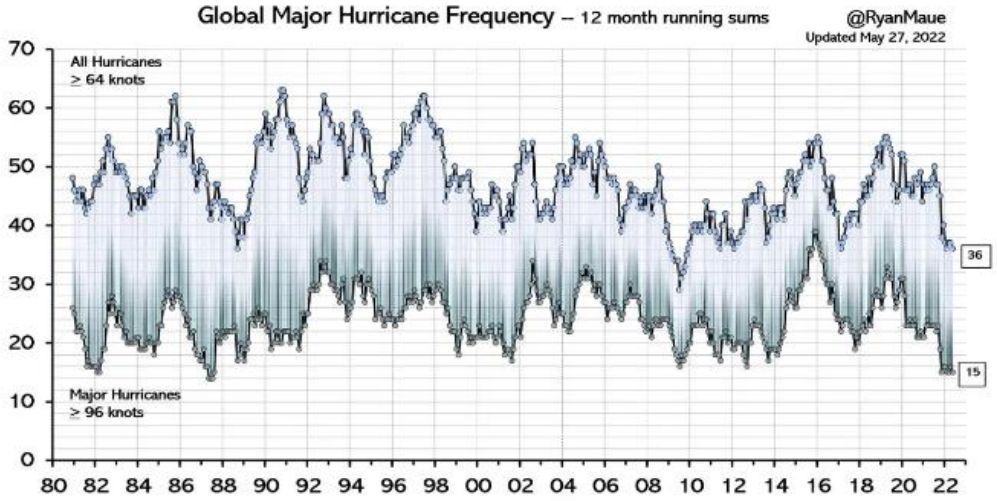
Source: NPR, Financial Times, BBC, CNBC, ABC News

HURRICANES

- Hurricanes may be incorrectly linked to climate change more than any other extreme weather event. If you were to search for articles related to any hurricane that made landfall in the U.S. in recent years, you would surely find a headline mentioning climate change and how human influences are a driving force.[1]

- Despite there being no lack of articles blaming hurricanes on climate change, the latest NOAA research states that they don't have high confidence that human influences have changed hurricane activity in the Atlantic beyond the natural range of variability.[2]

- The latest report from the United Nations' Intergovernmental Panel on Climate Change (IPCC), comes to the same conclusion. It states that there is "no consensus" on the role of human activity on changes to Atlantic hurricane activity. The IPCC also determined that, since 1900, there has been no trend in the amount of landfall events in the U.S.[3]



- A 2018 study found that U.S. hurricanes that have made landfall have shown no clear trend in either frequency or intensity. To the extent there is a trend, the frequency and intensity are slightly declining on a global level. This also applies to hurricanes that are category three and up.[4]

- More recently, a NOAA study from 2022 found that in the certain areas where tropical storms are increasing, such as in the Atlantic, it is from the reduced air pollution in Europe and North America. Further, the increased pollution in Asia has contributed to fewer storms in the Pacific.[5]

- The most common assertion tends to be that climate change is leading to a warmer ocean, which is fueling more frequent and severe hurricanes, but there is no trend in the global Accumulated Cyclone Energy (ACE) index that shows a correlation with mean surface temperature changes.[6]

- The equipment scientists use to study extreme precipitation, such as satellites, don't yet have long enough data records to establish trends, and rain gauges are local and spread too far apart to give comprehensive information.[7]

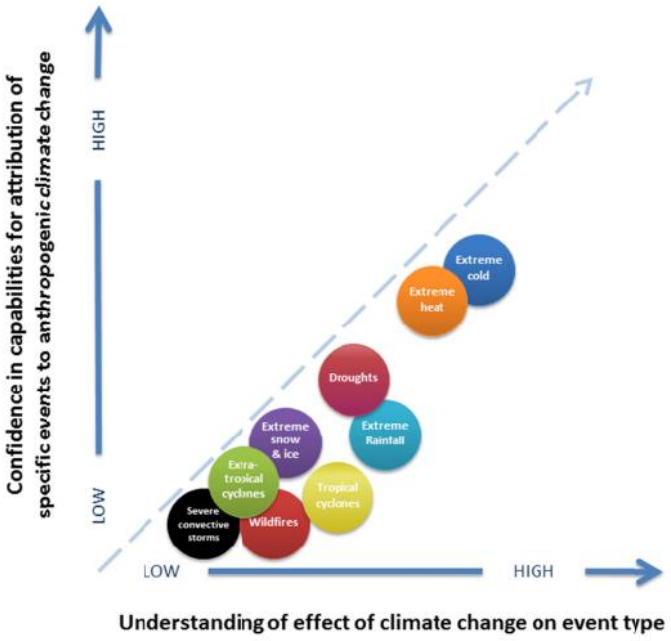
TORNADOES

- Although tornadoes are mentioned less frequently in relation to climate change than hurricanes, the media still like to throw in leading questions about a potential connection.[8]

- Climate change may affect the shifting of the location and timing of tornadoes, but there isn't clear evidence that it is making them more frequent.[9]

- Since the period of time for observing a tornado is short and localized, it is difficult for models to replicate tornado activity to better understand how and if climate change is affecting the atmospheric processes.[10]

- As a result, scientists have both incredibly low confidence and low understanding in their capability to attribute climate change to severe convective storms, or thunderstorms that may produce tornadoes, of any weather-related event.[11]



Source: Academy of Sciences' *Attribution of Extreme Weather Events in the Context of Climate Change*

FLOODS

- In addition to other extreme weather events, the IPCC also estimates the total amount of flooding around the world. The UN scientists found no clear picture of whether flooding is getting more or less frequent, much less if human activity is involved. Regarding inland flooding, they say there is a "lack of evidence and thus low confidence regarding the sign of trend in the magnitude and/or frequency of floods on a global scale."[12]

- The United States' official climatologists at the Global Change Research Program came to a similar conclusion to that of the United Nations. They found no significant connection between increased riverine flooding and human-induced climate change.[13]

- The IPCC also emphasizes that trends in floods are strongly influenced by changes in river management and that building on flood plains will have a stronger influence than climate change.[14]

- Although there have been widespread claims by the climate community that if precipitation extremes increase, flooding must also, flood magnitudes have been decreasing at the same time as extreme precipitation has been increasing.[15]

- The IPCC has also cautioned against attributing an increase in extreme precipitation caused by human activity to flooding since precipitation is only one of multiple factors.[16]

- Despite the conclusions and cautions given by major governmental climate researchers, the media continues to claim that climate change is driving floods.[17]

EXTREME TEMPERATURE

Al Gore famously claimed over a decade ago that CO_2 caused warming in the 20th century. Despite this erroneous claim, warming began hundreds of years before the increase of CO_2 in our atmosphere.

- Although the emissions scenarios from years ago are no longer realistic, the climate community continues to use them.[18] For example, the discredited predictions of four or five degrees of warming are still being used by the Biden administration to push for stricter environmental regulations and to limit the use of fossil fuels.[19]

- In regard to human influence on temperature increases, a large temperature increase of about one degree Fahrenheit occurred between 1880 and 1940, long before human influences mattered.[20]

- Some consider this temperature increase to be a recovery from the Little Ice Age, which spanned from 1600 to about 1850. The IPCC admitted the plausibility of this, and if true, this indicates that there has been no net warming at all in the past century due to greenhouse warming.[21]

- The IPCC also admitted that the earth did not warm for fifteen years (1998-2012), which climate models failed to forecast.

- Just a few years ago, climate alarmists claimed that continuing "business as usual," presumably meaning humans continuing to engage in activities that emit greenhouse gases, would warm the world four to five degrees Celsius. They are now admitting that new reports support the prediction that the world's temperature may rise by only half as much, which would be between two or three degrees over the next century.[22]

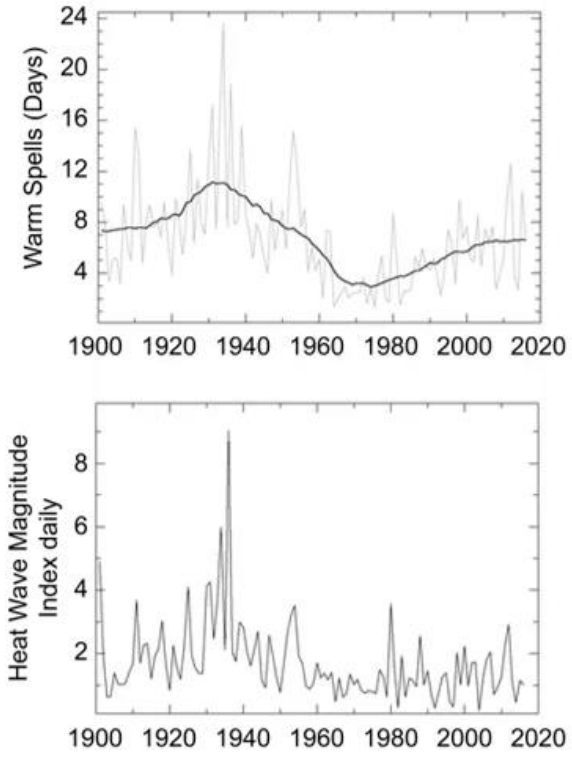
- Admittedly, tools to study the climate, which are then used to model forecasts, have severe limitations and often exhibit contradictory information. For example, data from satellites and radiosondes, which are carried by weather balloon, show only a slight warming of 0.1 degrees Celsius per decade since 1979.[23] On the other hand, surface thermometers show a warming trend about three times as great over that period.[24]

- Satellites, weather balloons, and the surface temperature station record all exhibit far lower warming trends than computer model predictions.[25]

- General Circulation Models have failed to accurately replicate global temperatures since accurate satellite data became available in 1979, because they "run hot" and forecast more warming than has actually occurred in the past or will occur in the future.[26]

- Although heat waves have been increasing since the 1960s, they haven't reached the peak from the 1930s in either frequency or intensity and are within the bounds of observed variability, which you can see from the image from the latest finalized National Climate Assessment.[27]

- The Environmental Protection Agency (EPA) analyzed the U.S. heat wave index and found that during the 1930s the index reached levels far greater than the past decade.[28]



US heat wave frequency (top) and intensity (bottom) since 1900, from the Fourth U.S. National Climate Assessment. Source; USNCA 2017

DROUGHTS

- The IPCC found that, "There is low confidence in a global scale observed trend in drought." According to their research, since 1950 drought likely increased in the Mediterranean and West Africa but decreased in central North America and northwest Australia. Therefore, on a global level, we aren't experiencing more drought.[29]

- The United States' National Climate Assessment (NCA) clearly states that "drought has decreased over much of the continental United States in association with long-term increases in precipitation."[30]

- A 2014 study shows that droughts across the world have been persistently declining since 1982, and another from 2018 finds this downward trend goes all the way back to 1902. [31] Other studies show that for the last ninety years, the number of consecutive dry days have been declining on a global scale.[32]

- There are numerous accounts of megadroughts lasting for several decades to centuries that happened during the medieval period, which dominate the length of modern-day droughts.[33]

- The IPCC stated that conflicting arguments for whether the area of land affected by drought since the mid-20th century has increased have resulted in low confidence of large-scale trends.[34]

SEA LEVELS RISING

Many fear future warming will lead to sea levels rising due to melting glaciers. Before Congress offers mitigation solutions, we must understand the speed and cause of the rise.

- For the past several centuries, the sea level has been rising at the rate of only 1 to 2 millimeters per year, which means the sea level will be around 6 inches higher by 2100.[35]

- Although coral reef islands are described as one of the most vulnerable places to sea levels rising, studies now show that natural adaptation of reef islands can continue to make them habitable as coral breaks up over time to create more sand.[36]

- Evidence from Antarctica indicates that, for centuries, ice accumulation caused by evaporation of ocean water and precipitation subsequently turning to ice has been offsetting the steric effect, which is when water expands as temperatures increase and ice melts.[37]

- Further, increased evaporation from oceans and more rapid accumulation of polar ice could even lead to a lowering of the sea level. This theory is supported by an observed inverse correlation between sea level rate of rise and tropical sea surface temperature.

- As for whether sea levels are rising due to human influences, research has found that CO_2 has not caused sea levels to rise beyond historical rates. In fact, the majority of scientists now believe the climate is less sensitive to CO_2 than what the IPCC has claimed.[38]

- In the last interglacial period, which was 125,000 years ago, the sea level was 20 feet higher without any human influence.[39]

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